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(19) (CA) **CANADIAN PATENT** (12)

(54) Waxer for Coated Embossed Containers

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ABSTRACT OF THE DISCLOSURE

The invention is a method for making a paperboard blank for pan block frozen fish. The interior surface of the container being formed with spaced apart depressions embossed therein for the purpose of assisting the escape of air forced from the fish as it is compressed within the container in the packaging operation by the steps of cutting a quantity of container blanks and coating and embossing the said blanks by continuously feeding them through a waxer and roll embosser serially set up so that the embosser accepts the output of the waxer on a continuous basis.

This invention relates to a method for making a paper-board blank for a container of the type described in Canadian Patent No. 726,545 dated January 25, 1966 to Fletcher Mayo. Containers of this type have been used extensively at least since 5 1965 for packaging frozen fish.

Generally speaking, the container blank is made from paperboard that is waxed and then embossed with spaced apart depressions that are adapted to relieve the fish packed therein of air that is driven out as the fish is compressed prior to freezing. 10 This invention is concerned with a method of making these containers and detailed reference to the manner of using the containers will not be made in this specification. In any event, it is very well known in the trade and is described generally in Canadian Patent No. 726,545.

15 The method used heretofor to make these containers is to cut the blank, apply wax to the blank and then stack the waxed blanks. The waxed blanks are transported to a cut and crease press, the flat bed of which is fitted with an embossing matte that has raised portions that form the depressions in the blank. 20 The blanks are fed to the press and the cylinder presses the blanks against the embossing matte to form the depressions in the paperboard.

This method of forming the depressions in the blanks has been successful as evidenced by its extensive and continuous 25 use over the past seventeen years. It is, however, relatively expensive because it involves the waxing and stacking of the blanks and the transport of the stacked blanks to another location for the distinct and separate operation of forming the depressions in the container.



Consideration to other methods for forming the depressions in the blank may well have been given by various persons over the past sixteen years, but no material modification in the general method for producing these blanks has occurred, notwithstanding the disadvantage noted. Persons in the art may well have had the idea cross their mind to form the spaced apart depressions in the container by passing the blank between a pair of matched embossing rolls and performing the operation on the blanks as they are delivered from the waxer. The two steps in combination would avoid stacking and transporting the waxed blanks to another location for embossing.

Whether the idea was conceived or not is not known but if it was it was apparently not given any credibility by those in the art. Some persons involved with the machinery prior to the invention felt that matched embossing rolls of this type would not work because the freshly waxed carton blanks would give up wax to the rolls and plug the embossing depressions. For whatever reason it was not considered practical and was not used notwithstanding the obvious advantages that can be achieved with it from a labour saving point of view.

It has been found that one can form the spaced apart depressions of these containers with a roll embosser set up to accept the output of the waxer on a continuous basis. The rolls of the embossing machine do not tend to plug up with wax and the time cost with which the operation can be performed is materially improved. This results in reduced manufacturing costs.

According to the invention, the method of making a paperboard blank for a container adapted to contain pan block

frozen fish, the interior surface of the container being formed with spaced apart depressions embossed therein for the purpose of assisting the escape of air forced from the fish as it is compressed within the container in the packaging operation comprises
5 the steps of cutting a quantity of container blanks, coating and embossing the said blanks by continuously feeding them through a waxer and roll embosser serially set up so that the embosser accepts the output of the waxer on a continuous basis.

The invention will be clearly understood after reference to the following detailed specification read in conjunction with the drawings.

In the drawings:

Figure 1 is an illustration of a container of the general type to which this invention relates;

15 Figure 2 is an enlargement of a portion of the surface of the container showing the depressions that are embossed therein; and

Figure 3 is a schematic illustration of the production method of the invention.

20 In the drawings the numeral 10 generally refers to a paperboard container according to this invention. It is made from chipboard waxed on both sides and then embossed with depressions 12 illustrated in Figure 2 of the drawings.

Detailed reference will not be made to the very well
25 known container or to its manner of use. This invention is concerned with a method of making such a container.

The container is made from a lay-flat blank folded into the formation illustrated in Figure 1.

The method of this invention is concerned with the waxing and embossing of the flat blank from which the container is made in a more efficient manner than has heretofore been possible. Figure 3 is a schematic illustration of the method.

5 The container blank 14 is fed from a stack of blanks 15 to a conventional waxer 16. One pair only of waxing rolls is schematically indicated by the numerals 17 and 18. The standard waxer of the type manufactured by International Paper Box Machine Company is very well known. It has four sets of waxing rolls. The bottom roll of each set extends into a sump of hot wax. The hot wax is circulated by a pump and sprayed over the blank and the top roll. The waxer also includes a chill water tank 19. The blanks covered with hot wax are conducted downwardly into the chill water to set the wax. This machine and its 10 operation is so well known that only brief schematic reference to one set of rolls is referred to in the drawings. The blanks are then fed from the water cooler 19 of the waxer to a tape feeder 15 20 of conventional design and thence to the input table of a pair of rotating cooperating steel notched embossing dies 24 and 26.

20 The top embossing die has projections having the configuration of the depressions 12 and the bottom embossing die 26 has corresponding depressions. The embossing dies 24 and 26 are synchronized so that as they rotate the projections engage in the depressions to form the depressions 12 over the surface of the 25 blank as it passes therethrough. Numeral 30 is a drive roll that projects the blanks 14 into the embossing rolls 24 and 26. It is driven through a slip clutch and insures that the blanks are fed into the rolls as they are delivered from the tape conveyor 20.

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The speed of tape feeder 20 is synchronized with the speed of the waxer to deliver the output of the waxer to the embossing rolls.

The embossing rolls deliver their output onto a slow moving stacking conveyor 32 that is designed to shingle the embossed blanks prior to manual stacking for shipment as at 34. The 5 operation of a shingle spacer is conventional and not referred to in detail.

The design of the embossing rolls and their operation is not of itself novel. Embossing rolls similar to the rolls 24 10 and 26 are of known design. The important thing about this invention is the concept in its entirety of taking the waxed blanks as they come from the waxer on a continuous basis and feeding them to embossing rolls. It is the unexpected success with which this configuration operates in the manufacture of freshly waxed 15 container blanks that is of importance in this invention.

It has been found that containers can be continuously fed through the system at a speed of about 750 feet per minute. This speed represents a speed of about 6000 containers per hour.

The invention has worked well with solid steel embossing 20 rolls with no provision for internal cooling and hardened to 55 Rockwell C and hard chrome plated. The wax coating is a conventional wax or equivalent coating.

Modifications in the roller arrangement, the wax or 25 coating composition or feed system within the skill of the art are contemplated and it is not intended that the description of the equipment given herein should be read in a limiting sense. It will be understood that the term "wax" includes any coating useable for this application. The important thing is that embos-

sing rolls have successfully worked on an in line continuous system from the output of a waxing machine to wax and emboss container blanks.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

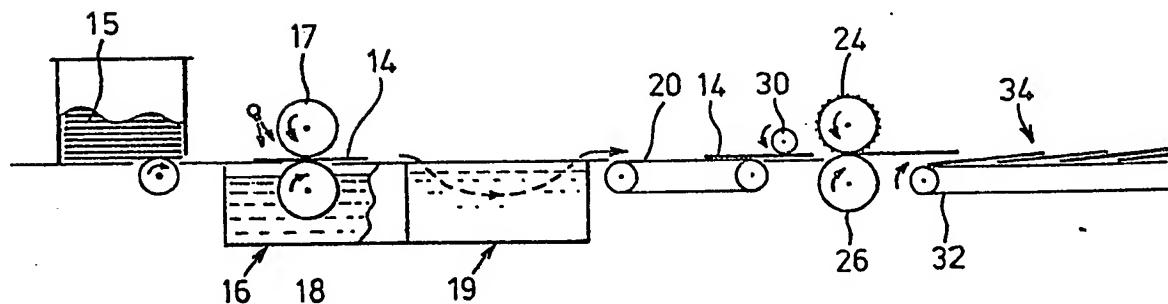
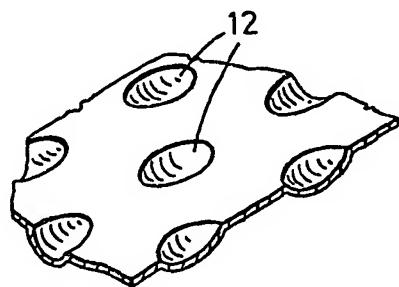
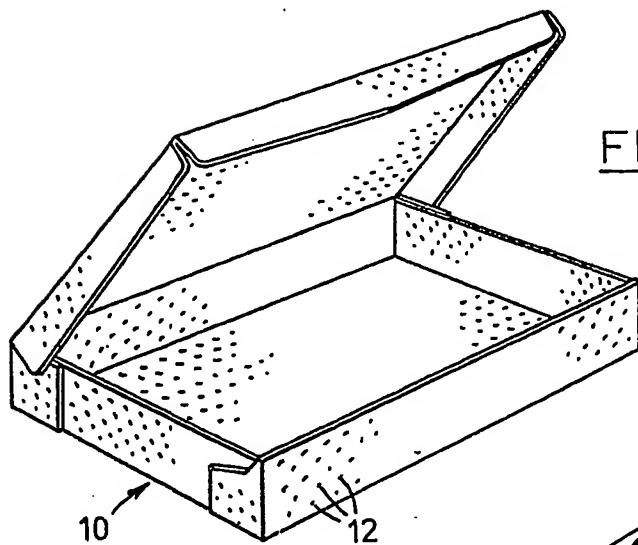
1. A method of making a paperboard blank for a container adapted to contain pan block frozen fish, the interior surface of the container being formed with spaced apart depressions embossed therein for the purpose of assisting the escape of air forced from the fish as it is compressed within the container in the packaging operation comprising the steps of:

cutting a quantity of container blanks;

coating and embossing the said blanks by continuously feeding them through a waxer and roll embosser serially set up so that the embosser accepts the output of the waxer on a continuous basis.

2. A method of making a paperboard blank for a container adapted to contain pan block frozen fish, the interior surface of the container being formed with spaced apart depressions embossed therein for the purpose of assisting the escape of air forced from the fish as it is compressed within the container in the packaging operation as claimed in Claim 1 in which said roll embosser is a steel roll embosser with synchronized matched embossing rolls.





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